



Higher Education and the Development of a High-Speed Rail Workforce in California

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Emerging need for a qualified work force to create HSR in California

- Preliminary estimates have suggested that a completed HSR system will create hundreds of thousands of jobs in California and many more in 13 other HSR corridors.
- Development , construction, and operation of HSR requires special skills and knowledge, yet no specific HSR skills are currently being taught by US colleges and universities.
- The CSU is ready help lead a cooperative effort by the California higher learning system to prepare the hands-on designers, builders, and operators of this emerging industry.



Unique demands of High-Speed Rail require focused response by colleges and universities

- Routing and planning require skilled surveyors, geologists, hydrologists, biologists, social scientists and others.
- Designing and building require engineers who can address the special demands of high speed systems.
- Construction will also require many trained and skilled laborers as well as planners to help integrate the system.
- Operation and maintenance will require skilled workers and managers.



HSR requires specific knowledge and skills that are presently not available in sufficient quantities

For example:

- Ultra HSR (200+ MPH) requires engineered slab track, not used in the US, and not ballasted foundation material; the manufacture and maintenance of high performance vehicles composed of carbon fiber.
- Ultra HSR Positive Train Control Systems are not used in the US and require unique design, installation, operations and maintenance skills.
- Design-build-operate-maintain-finance (DBOM-F) contracting has never been accomplished in the US but will be used for HSR contracts in California and for other national corridors.

The CSU, UC, and Community College systems will be needed to prepare a qualified workforce

- The CSU can produce graduates with Bachelor's and Master's degrees in specific, applied areas including Engineering (Civil, Mechanical, Electrical), Urban Planning, and Management and many others.
- Community colleges will need to help supply electricians, heavy equipment operators, skilled infrastructure construction workers and many others.
- The UC system will need to increase the number of specialized doctorates that can teach and prepare researchers in these fields.



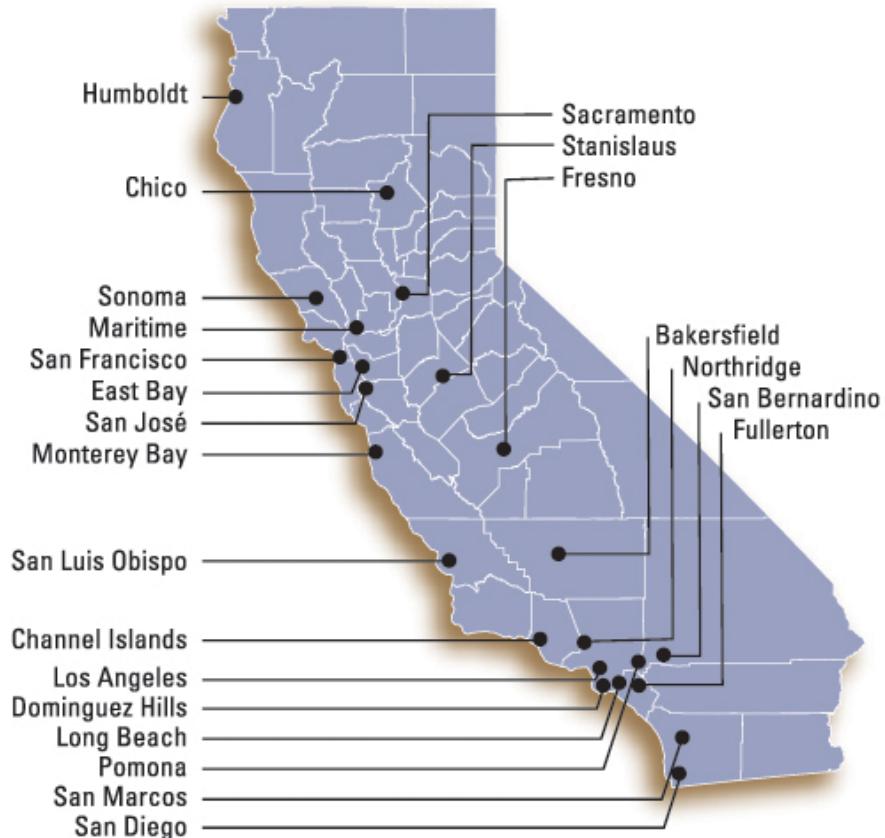
California State University: Major State Provider of Workforce at Baccalaureate and Master's Levels

**Future Contributor to California's
High Speed Rail Designers, Builders,
and Operators**



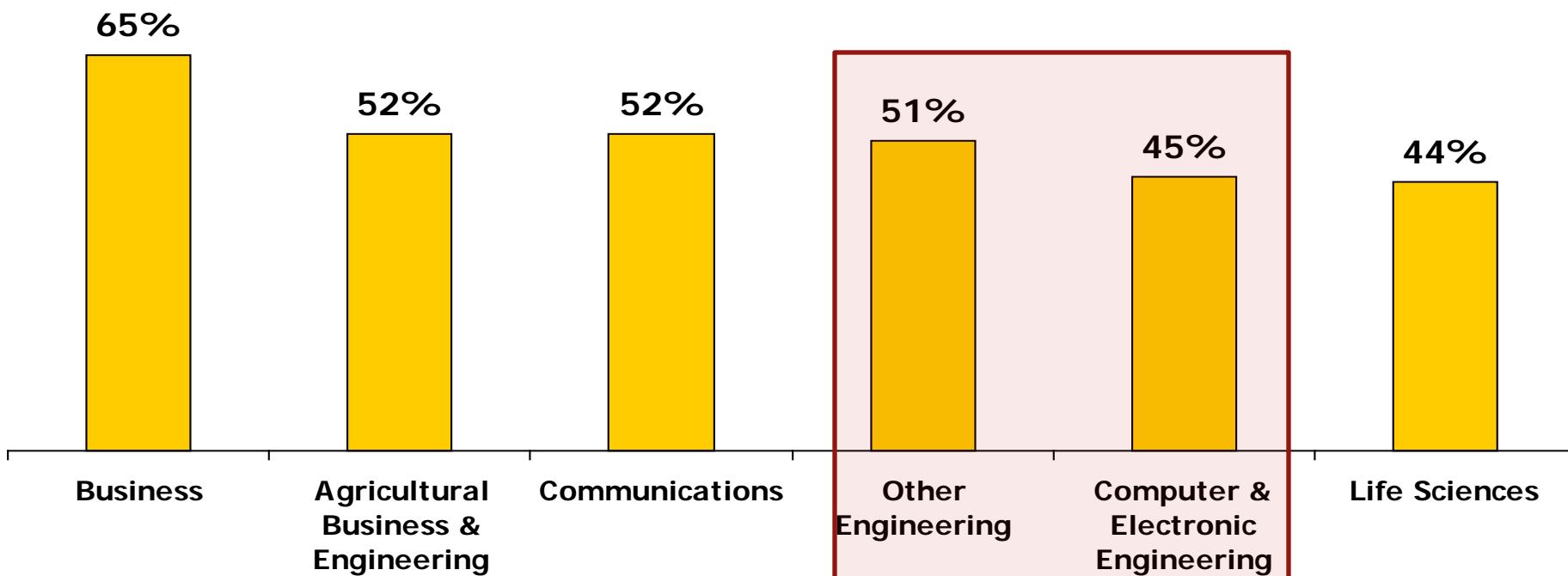
CSU: Size and Diversity

- CSU is the largest, most diverse, bachelor's degree-granting public higher education system in the United States; it serves **450,000** students
- CSU graduates more than **80,000** students per year
- CSU graduates more African American, Hispanic, and American Indian students than ***all other*** California universities combined



CSU Awards The Most Degrees for Business and Industry...In Fields Needed for California's High Speed Rail Systems

CSU Bachelor's Degrees as Percent of All Public and Private University Bachelor's Degrees Awarded in California, Critical Fields 2001-2002



Mineta Transportation Institute research project

- Six month effort will establish firm estimates of the workforce development needs associated with HSR in California and in thirteen other HSR corridors across the US.
- Final report will link employment to specific fields, academic disciplines, and degree providers.
- Results will be used by this task force and others to help fashion an appropriate response by institutions of higher learning in California.

What are the future workforce needs for California High-Speed Rail?

How will they translate into need for college degrees and certificates?

Summary and next steps

- High quality, accessible educational systems are urgently needed to provide bridges to careers in all facets of HSR development and operations.
- CSU, in partnership with the UC and CC systems, can teach large numbers of students quickly and in a cost-effective manner.
- This task force will produce a comprehensive plan for meeting these needs, supported by accurate data from MTI.
- The task force seeks to coordinate closely with the CHSRA and its staff to ensure a workable solution.

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